

**Annual Report
of the
Cancer Treatment
and
Research Foundation
of
Nova Scotia**

**April 1, 1988 to
March 31, 1989**

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FOUNDATION BOARD



Mr. C. H. Durland, Q.C.
Chairman



Dr. P. Jackson



Mrs. M. Ray



Mr. W. Gilbert



Major A.G.L. Lawrence
(Ret'd)



Mrs. N. Stephen



Mrs. M. Grantham



Mr. G. Martin



Mrs. F. Stevens



Mrs. J. Henderson



Miss S. Medjuck



Dr. W. C. Tupper



Mr. R. Isner

CHAIRMAN'S REMARKS

Hon. David Nantes
Minister of Health
Province of Nova Scotia

Dear Mr. Minister,

I again take pleasure in reporting to you on the Cancer Treatment and Research Foundation of Nova Scotia for the year ending March 31, 1989.

The contents of this report reflects the activity of our Foundation for the year and I believe confirms a positive direction of our Foundation in meeting our mandate.

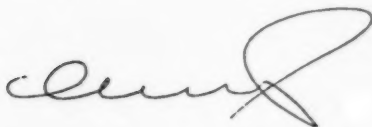
In the past we experienced manpower shortage in a number of key areas. I am now happy to report that we will reach full complement in the very near future. This will enable us to fully develop our programming within the concept of multi-disciplinary patient care.

It is with sincere regret that I acknowledge the retirement of Dr. D. H. Thomson, our first executive director. Dr. Thomson gave us many years of faithful and dedicated service and our Foundation is the richer for his presence and contribution.

We are obviously pleased and excited with Dr. Thomson's replacement, Dr. Peter Fitzpatrick as Physician-in-Chief, a recognized Canadian oncology leader. In a very short period of time he has made a substantial and favorable impact upon our Foundation.

I also wish to acknowledge the excellent and dedicated staff of our Foundation including our Executive Director, Mr. Harry Churchill. It is through their efforts and commitment that we take pride in the quality care we give to our patients.

Respectfully submitted,



C. H. Durland, Q.C.
Chairman

EXECUTIVE DIRECTOR'S REPORT



Mr. H. J. Churchill

On June 16, 1988 an open house was held in order to recognize the fifth anniversary of the operation of the Foundation in our present facility. We were privileged to have the Minister of Health and Fitness, Mr. Joel Matheson, in attendance. During his visit he unveiled a sculpture which acknowledges gifts to the CTRFNS. The Foundation commissioned this sculpture by Mrs. Dawn MacNutt, which is entitled "Winning". It depicts three trees of life. Some of the leaves have fallen and these represent patients that have succumbed to cancer. Personal donations in their memory are acknowledged with the inscription of the patient's name on the base. Mr. Matheson also introduced a patient education video for distribution through the Cancer Society and other health institutions and groups in Nova Scotia. Its purpose is to try to reduce the anxiety of patients coming to the cancer clinic. On this occasion, Dr. Raymond Bush, the Director of the Ontario Cancer Institute incorporating the Princess Margaret Hospital, gave a public lecture entitled "Potential Impact on the Health Care System from Expected Trends in Cancer Incidence". Incidentally, Dr. Bush was an intern with Dr. Dickson at the Victoria General Hospital in 1964. In the evening following the open house there was a reception for all staff in the Scotia Room of the Victoria General Hospital where employee long service awards were presented for the first time. There were 23 individuals honored, having provided over 235 years of service.

In January 1989 our Cape Breton satellite clinic in Sydney was expanded. It is now held on a monthly basis on the third Friday of each month at St. Rita Hospital. The clinic is attended by Dr. Oscar Wong, a radiation oncologist and Dr. Ron MacCormick, a medical oncologist.

Increased activity in clinical research has led to the establishment of a Division of Clinical Trials and has been given departmental status within the Foundation. Mrs. GERALYNN HIRSCH was appointed coordinator and Dr. AUDLEY BODURTHA the chairman of the Clinical Trials Advisory Committee.

Four years in the making, the Mission Statement for the CTRFNS was accepted by the Board in February and its direction will be implemented during the coming year.

We maintain close contact with the other provincial cancer agencies. This year the annual meeting was held in Saskatoon when the first steps were taken to formalize the group meetings. Also during the year the Canadian Cancer Society coordinated a "Consensus Conference" that was funded by the Department of National Health and Welfare. Following thoughtful deliberations, a task force called "Cancer 2000" was appointed to look at all aspects of cancer control in Canada. Dr. Richard MARGOLESE, a surgical oncologist from Montreal was appointed chairman and we are pleased that one of our nurses, Mrs. LORNA BUTLER, has been appointed to the committee. We have also provided our provincial Royal Commission on Health Care with a report on the cancer services from our perspective.

During the year there were several staff changes among our senior medical staff. Two medical oncologists, Dr. T. VANDENBERG and Dr. R. WIERZBICKI resigned in order to take up appointments at the London Clinic of the Ontario Cancer Treatment and Research Foundation and in Saudi Arabia at the King Faisal Specialist Hospital. This reduced the Department of Medical Oncology to one physician and so we are actively trying to recruit replacements. Reluctantly, we also received the resignation of Dr. JOHN ALDRICH who had been the head of the Medical Physics Department since 1973. Following a sabbatical to the Royal Marsden Hospital in London, England he decided that he should return to the land of his roots. Their gain will be our loss and we thank Dr. Aldrich for many years of outstanding service. Efforts are now underway to replace him. It was also the year for us to say goodbye to Dr. DUGALD THOMSON who was appointed the first executive director of the CTRFNS in 1980. During his tenure Dr. Thomson oversaw many changes and helped to steer the Foundation to its present position. In his place, Dr. PETER FITZPATRICK, a senior physician from the Princess Margaret Hospital in Toronto and a professor of radiology (oncology) in the University of Toronto, has been appointed Physician-in-Chief with Special Responsibility effective June 1, 1989. Dr. Fitzpatrick is an acknowledged authority on tumours of the head and neck and especially in those involving the eye and orbit. He is also an adjunct professor of veterinary oncology at the Ontario Veterinary College in Guelph. He brings considerable administrative experience gained during his 25 years in Toronto where he chaired several important committees and was president of their medical staff. With the new perspectives and administrative style Dr. Fitzpatrick brings to Halifax, we look forward to an exciting period of growth, accenting multi-disciplinary care and increased academic activities.

A stylized, handwritten signature of Harry J. Churchill, C.H.E. The signature is written in dark ink and is positioned above the printed name and title.

Harry J. Churchill, C.H.E.
Executive Director

PHYSICIAN -IN-CHIEF'S REPORT



Dr. P. J. Fitzpatrick

This report reflects the activities of the Foundation for the year ending March 31, 1989 - a year of uncertainty and impending change. The Mission Statement of the CTRFNS that was several years in the making was finally completed and accepted by the Board. It forms the basis for our new directions in the '90's. The Halifax Clinic is being re-organized through 12 specific multi-disciplinary tumour site groups (TSG's). Multi-disciplinary opinions and treatment for cancer patients have been available for some time but it will be a prime function of the Foundation to coordinate these various aspects of care. Individual TSG's will define their management policies and objectives within the broader guidelines of the Foundation by-laws. Oncologic practice is changing rapidly with the explosion of medical knowledge. Today clinicians have a better understanding of malignant disease and our greatest asset will be the capacity to respond to the challenges of providing the appropriate therapy as well as delving further into the causes and mechanisms of neoplasia. Our goals of excellence and new initiatives can only be realized within the framework of an academic oncology centre. Ambulatory care will be of increasing importance and this will have significant implications for both the clinical and educational programs of the Foundation. We must recruit top-notch clinicians who will develop high calibre programs. These should combine optimal care with fiscal responsibility. We will not be able to do everything and therefore have to focus on some aspects of oncologist practice. These choices will be proposed by the individual TSG's, from which we will develop a corporate stance.

The Foundation will also need to raise its public profile if it is to influence health policy decisions. In this respect an association of the Atlantic Provinces with agreed common programs would seem to be a tremendous advantage. We should become increasingly involved in different aspects of research because success brings new financial support. Here we must work closely with the pharmaceutical industry and with the manufacturers of radiotherapy and other technical equipment. Our educational programs need to be expanded, not only in the medical school at Dalhousie University but also outside in the community in association with other health care professionals and with the general public.

In the Halifax Clinic we have the basis for an excellent cancer centre and the structure is such that we will be building on a solid foundation. There are bound to be some teething troubles as we re-structure, but if the Foundation can focus on the provision and coordination of multi-disciplinary programs we will have the opportunity to develop an outstanding academic oncology centre.

A handwritten signature in cursive script, reading "P. J. Fitzpatrick".

P. J. Fitzpatrick, MB
BS, FRCPC, FRCR
Physician-in-Chief

COMMITTEES

EXECUTIVE COMMITTEE

Mr. C. H. Durland, Q.C.
Mr. H. J. Churchill
Dr. D. H. Thomson
Mrs. F. Stevens

COMMUNICATIONS COMMITTEE

Mr. G. Martin - *Chairperson*
Dr. J. Aldrich
Mr. H. J. Churchill
Mrs. S. Hardy
Mrs. J. Henderson
Mrs. M. Ray
Dr. R. Wierzbicki (to November 1988)
Dr. O. Wong (from November 1988)

FINANCE AND PERSONNEL COMMITTEE

Mrs. F. Stevens - *Chairperson*
Mr. H. J. Churchill
Mr. R. O. Isner
Major A.G.L. Lawrence

ADMINISTRATION

Mr. H. J. Churchill
Executive Director

Dr. D. H. Thomson
Medical Director (Retired May 31, 1989)

Dr. P. J. Fitzpatrick
Physician-in-Chief (Appointed June 1, 1989)

Dr. E. A. Moffitt (Interim)
Clinic Director

Mr. G. L. Hatcher
Office Manager

HEADS OF DEPARTMENTS

Dr. J. E. Aldrich
Medical Physics

Mrs. L. M. Burgess
Radiotherapy

Mrs. T. F. Croucher
Health Records

Mrs. J. L. Dickson
Nursing

Dr. J. F. Filbee (Acting)
Radiation Oncology

Dr. R. C. Fraser
Surgical Oncology and Medical
Specialties

Dr. R. E. MacCormick (Acting)
Medical Oncology

Mrs. J. M. Smith
Data Processing

HALIFAX CANCER CLINIC MEDICAL STAFF

DERMATOLOGY

Dr. J. Klotz
Dr. J. B. Ross

GYNAECOLOGIC ONCOLOGY

Dr. R. S. Andrews
Dr. R. C. Fraser
Dr. J. F. Jeffrey
Dr. N. K. MacLennan
Dr. M. G. Tompkins

MEDICINE

Dr. R. J. Bedard
Dr. S. F. Bedwell
Dr. L. Fernandez
Dr. J. D. Gray
Dr. O. A. Hayne
Dr. V. W. Ing
Dr. R. L. Kirby
Dr. P. L. Landrigan
Dr. G. R. Langley
Dr. D. J. MacIntosh
Dr. J. J. P. Patil
Dr. S. K. Robinson
Dr. J. L. Sapp
Dr. W. F. Schlech

MEDICAL ONCOLOGY

Dr. R. E. MacCormick
Dr. T. Vandenberg (to November 1988)
Dr. R. Wierzbicki (to November 1988)

NEUROSURGERY

Dr. R. O. Holness
Dr. W. J. Howes

OTOLARYNGOLOGY

Dr. E. L. Attia
Dr. G. E. Boyd
Dr. G. M. Novotny
Dr. F. S. Wong

PATHOLOGY

Dr. A. I. Bernardo
Dr. A. A. Covert
Dr. D. T. Janigan
Dr. I. Zayid

RADIATION ONCOLOGY

Dr. J. F. Filbee
Dr. P. K. Joseph
Dr. D. H. Thomson (Retired May 31, 1989)
Dr. O. S. Wong

SURGERY

Dr. C. D. Bethune
Dr. A. Bodurtha
Dr. C. Bugden
Dr. M. T. Casey
Dr. J. P. Curry
Dr. R. S. Dunn
Dr. C. H. Graham
Dr. M. Gross
Dr. G. P. Konok
Dr. A. C. MacDonald
Dr. A. S. MacDonald
Dr. E. C. MacMullin
Dr. J. D. Miller
Dr. M. A. Naqvi
Dr. S. T. Norvell
Dr. P. D. Roy
Dr. B. J. Steele

UROLOGY

Dr. R. B. Auld
Dr. S. A. Awad
Dr. P. Belitsky
Dr. W. A. Ernst
Dr. F. G. Mack
Dr. S. Yoon

PATIENT STATISTICS

Foundation Patients Seen at Halifax Clinic
April 1, 1987 - March 31, 1989

Year	New Patients	Number of Patient Visits		
		Clinic	Radiation	Chemotherapy
Apr. 1, 1988 Mar. 31, 1989	1,823	12,681	19,912	2,238
Apr. 1, 1987 March 31, 1988	1,928	15,059	19,992	1,988

PATIENTS TREATED BY RADIATION

Type of Treatment	No. of Patients		No. of Treatment Visits	
	Apr. 1/88 Mar. 31/89	Apr.1/87 Mar. 31/88	Apr. 1/88 Mar. 31/89	Apr. 1/87 Mar. 31/88
X-Ray	94	160	342	452
Linear Accelerator	759	682	10,526	9,843
Cobalt	889	924	8,778	9,443
Gold Seed	65	63	65	63
Cesium	109	123	132	126
Other (P32,I131)	69	65	69	65
TOTAL	1,985	2,017	19,912	19,992

**REPORTS
of
DEPARTMENTS and DIVISIONS**

CLINICAL TRIALS DIVISION

The past year has been one of change for the unit. In 1988 the Board accepted a task force report on clinical trials under which the group became a separate division but with departmental status. A Clinical Trials Advisory Committee was established with a responsibility to supervise all new clinical studies and to collaborate with programs in other health care and research institutions.

We continue to be solely supported with soft funds by the National Cancer Institute and some pharmaceutical companies. Staff consist of an administrative coordinator who is also the clinical trials nurse and a data manager. Things are working well and currently we are participating in 12 studies. We have a cumulative patient accrual that is now 450 in phase-3 studies which compare a standard treatment to a new therapeutic regime. We are included in the NCIC quality assurance programs and have been well rated by this group. Several of our physicians are involved in clinical trials and sit on various NCIC site committees. Mrs. Hirsch was appointed to the executive of the NCIC group of nurses and data managers.

Our major goal for next year is the acquisition of hard funding from government for at least one staff member in order to ensure the viability of the group. We hope to initiate some of our own new trials and to increasingly participate with other collaborative groups in order to develop better and more effective treatments for cancer.

DATA PROCESSING DEPARTMENT

Over the past year it has become increasingly evident that a replacement for the Foundation's information system is required. Support from CyCare has been minimal and much of our time and effort has been spent in maintaining the system to provide the basic records necessary for the clinic to function. Currently the Computer Advisory Committee is reviewing the Foundation's future needs for patient records and computers in general. June 1991 has been set as the target date to implement a new clinic management system and so an overall review of the computer needs for all departments both now and in the future is underway.

In conjunction with Health Records we have developed a quality assurance program to analyze historical data stored within the Foundation's information system with respect to accuracy and completeness. The department assists in the generation of statistics for everyday use and clinical research. Both the volume and complexity of these requests have increased and significant data manipulation is required due to the limitations of the present system. The department also assisted with the generation of statistics and graphics for the annual report of the Provincial Cancer Registry. There is an increasing demand for graphics to be used in presentations, posters and publications. To improve the quality of the documents a laser printer has been purchased.

Mrs. Smith, the coordinator of information systems has assumed other clinic responsibilities, the most important being that of chairperson for the Fire and Safety Committee and in developing appropriate policies and procedures for the Halifax Clinic. Next year the clinic is being re-structured through 12 tumour site clinics. Planning for the new schedules for both patients and staff will take a major part of our time. In addition, the demands of the accreditation program to be implemented in the next year or two will require a major input from data processing.

HEALTH RECORDS DEPARTMENT

The Health Records Department has continued to coordinate the relevant Halifax and satellite clinic activities. The department has strived to meet patient record related requirements pivotal to our goal of accreditation in the 90's. This has entailed the review and update of policies, development of standards and the process of regular chart auditing.

Our wide scope of responsibility necessitated input and participation in several Foundation committees, and ongoing contact with our Foundation departments has ensured optimum information flow. We were also involved in Foundation wide projects such as "1988 Open House" and the development of the "Attendance Awareness Program".

Externally, communication with Metro Area Directors of Health Records Departments was enhanced by monthly meetings; as well, a copy of the updated Cancer Registry Manual was sent to all regional hospital Health Record Departments and recipients of the incidence report now includes all providers of information.

Our responsibility for co-ordinating the activities of the Provincial Cancer Registry focused on ensuring accuracy of the data recorded and statistical analyses which form the basis of the 1988 Cancer Incidence Report. We have continued to benefit from our association with a part-time epidemiologist working on relevant registry projects. For the first time Health Record Administration students from the Halifax Infirmary School of Health Record Science participated in a Provincial Cancer Registry based epidemiological practicum, which provided a valuable experience for all concerned.

Future goals and objectives of the Health Record Department are focused on our overall responsibility for providing timely, accurate records and data to meet patient care and research needs. The many achievements of the past year have put in place the procedural requirements necessary for the fulfillment of these objectives.

MEDICAL ONCOLOGY DEPARTMENT

Once again the major issue in the department is that of manpower shortage. During the past year there have been further resignations and we have lost Dr. Wierzbicki who has taken an appointment in Saudi Arabia and Dr. Vandenberg who has gone to the Ontario Cancer Treatment and Research Foundation Clinic in London, Ontario. This reduces the medical staff to one medical oncologist and this has allowed for very little development or new programs.

SERVICE

This component is within three venues:

1. The Halifax Clinic of the CTRFNS.
2. The inpatient service within the Victoria General Hospital.
3. The CTRFNS Cape Breton Clinic.

Our activities within the Halifax Clinic has been managed by hiring two clinical associates and during the past year these have been Drs. Bruce Colwell and Kathy Sharma. Under the supervision of Dr. MacCormick, between them they have seen every new and follow-up patient and helped with the investigations and subsequent chemotherapy. Although less than a satisfactory arrangement this has served the basic needs of the clinic. The majority of inpatients are looked after within the Department of Medicine and as it has a shortage of house staff, the day care has been looked after by the medical oncologist. This has included all activities from the clerking of patients to prescribing treatment and arranging for subsequent follow-up so that meaningful academic activity has not occurred. The medical oncology division of the Cape Breton Clinic sees between 30-35 patients each month of which 5-10 are new patients. The service is extremely well run and its success is almost directly due to the efforts of Jean MacPhee and her colleagues. We work closely with the attending radiation oncologist which facilitates cross-consultation where the patients live.

RESEARCH

Most of our activity here is within the structure of the Clinical Trials Division. We are involved in several multi-institutional studies funded through either the NCIC or various drug companies. We are involved with the Maritime Lymphoma Group and assisted by medical students doing electives with the department, we have studied our experience with carcinoid tumour and cancer of unknown origin.

EDUCATION

The department provides undergraduate lectures for medical students including such topics as pharmacology, ethics and death and dying. Dr. MacCormick also lectured on behalf of Dalhousie University to different groups in Fredericton, Moncton, Lunenburg, Sydney as well as Halifax.

THE FUTURE

Active recruitment is underway and we are trying to attract both senior and junior medical oncologists. We have been successful in enticing several members of the V.G.H. house staff as well as a clinical associate to enter residency programs for medical oncology. Hopefully these physicians will return to the Maritimes.

MEDICAL PHYSICS DEPARTMENT

The department's staff of 16 includes seven physicists and five radiation technologists who provide the technical services required for radiotherapy. These include the design and maintenance of computer based equipment required for the telecobalt units and linear accelerators. The department also provides medical physics services to the Victoria General Hospital, other health institutions and Dalhousie University. The Foundation has two cobalt units that were purchased in 1966 and are now nearing the end of their useful life. Replacements are now being considered. The two linear accelerators installed in 1982 are halfway through their projected life and as they grow older are requiring more time to be spent on repairs and preventive maintenance. Our simulator is now outdated and will be replaced next year with a new state-of-the-art Phillips machine.

The number of patients undergoing radiotherapy is increasing as is the complexity of their treatment and so we are having to spend more time being directly involved with patient care. Dr. Jackson and Mr. Daniels continue to provide medical physics support for the imaging services of the Department of Diagnostic Radiology at the Victoria General Hospital. During the year they helped to install a new nuclear magnetic imaging unit and with the development of a mammography data system. Dr. Jackson also acts as the Research Director for Radiology and is involved in several collaborative research projects.

Our research efforts continue and the compensator system that we have developed is now being used in other cancer clinics to provide homogenous irradiation. Work has continued on the thermometry of hyperthermia and with the dental enamel dosimetry project.

In March Dr. John Aldrich resigned as Director of Medical Physics, a position that he has held for 15 years. He took a six month sabbatical at the Royal Marsden Hospital in London, England where he worked on a transducer design for hyperthermia. The department owes a great deal to Dr. Aldrich who published several papers during his tenure and played a major part in the design and development of this clinic. In his place, Dr. John Andrew, a senior physicist since 1983 was appointed acting director.

In the summer the department welcomed Mr. Edward Waller and Mr. Wayne Pickett as summer students. Also, during the year Mr. David Reid and Mr. Bob Stevens from the Technical University of Nova Scotia carried out their fourth year engineering projects in the department and Mr. Alex Djordjevich did part of his Ph.D. thesis while based at the University of New Brunswick.

Staff members have been heavily involved in committee work both within the Foundation and elsewhere. Mr. Cupido Daniels completed his term on the governing board of the Canadian College of Physicists in Medicine while Dr. Aldrich served on the Advisory Committee on Radiological Protection of the Atomic Energy Control Board and on the Federal Radiotherapy Workload Measurement Task Force. Dr. Jackson is chairman of the Atlantic Provinces Nuclear Medicine Group and serves on the Educational Accreditation Board for the Canadian Medical Association. He is also Chairman of the Physics Committee for the World Federation of Nuclear Medicine and Biology that is meeting in Montreal in 1990. Dr. Andrew was elected to the board of the Canadian College of Physicists in Medicine and served on the Provincial Radiation Health Advisory Committee. He was also appointed as an honorary research associate in the Department of Mechanical Engineering of the University of New Brunswick.

Next year, with the increasing workload, the re-organization of the clinic and the installation of the new simulator will be a challenging one for the department.

NURSING DEPARTMENT

The department's main commitment is to provide optimal care for cancer patients and their families. The department consists of 16 nurses, including a director and head nurse. We were sorry to receive the resignation of Ms. Elizabeth Gibbs who accepted an appointment as the administrator for the Nova Scotia ENT Centre. In her place, Mrs. Victoria Sullivan was appointed head nurse and Mrs. Lorna Butler was appointed as the radiotherapy nurse coordinator. This year government funding allowed us to implement primary nursing by using a nurse in a coordinators role in the radiotherapy department. Two nurses were employed in the program in which the goals were realized in advance of the target dates. We hope to expand the model of primary nursing to other areas within the clinic and begin to develop a quality assurance program. The Foundation has set an accreditation target date for 1991 and this will have a significant impact on the department.

In September 1988 a Patient Education Committee was established within the department with the primary mandate being to identify and develop education materials for patients with different cancers. A video tape "Our Commitment to Caring" was produced in June and is available to other groups in the province.

In order to assist new staff to understand the Foundation, a sub-committee developed a specific orientation package for nurses. Weekly staff in-service conferences are held to keep staff abreast of new developments and as a forum for discussion. Several staff have attended conferences and we look forward to increasing continuing education activities in the future.

The re-organization of the clinic planned for next year will have a significant impact on the department. This will require a review of the responsibilities of the department together with a re-alignment of staff to support the tumour site oriented clinics and the re-organized radiotherapy and chemotherapy units. Staff have been heavily involved in developing the Mission Statement for the Foundation and the nursing department will develop its own philosophy and objectives.

RADIATION ONCOLOGY DEPARTMENT

At the end of the year we said goodbye to Dr. Dugald Thomson who has headed the radiation oncology department within the clinic, the Victoria General Hospital and Dalhousie University since 1980. He arrived from the London OCTRf clinic with the inception of the Foundation and oversaw the move into our present facilities in 1982. Many changes occurred during his tenure. He will be missed by both patients and colleagues alike. At his retirement a reception was held. Although Dr. Thomson has retired he is not lost to the Foundation and has agreed to work as a locum tenens in the Fall when many of the staff are away at professional meetings.

During the year Dr. Paul Joseph joined the staff from Saskatoon where he had been on the staff for four years. Prior to that he received his radiation oncology training at the Cross Institute in Edmonton and we look forward to his future contributions to the department's activities. Dr. Timothy Whelan, a Rhodes Scholar from Newfoundland who graduated MD from Oxford University and subsequently had specialist training in both radiation and medical oncology at the Princess Margaret Hospital, will join us on April 1, 1989. He has just completed a fellowship in oncology at the Toronto Bayview Cancer Centre and we welcome him as a full time member of the medical staff.

In June Dr. Peter Fitzpatrick joins us a Physician-in-Chief. He succeeds Dr. Thomson as head of the radiation oncology department within the Foundation, the Victoria General Hospital and will be professor and head of the radiation oncology department at Dalhousie University. He has been at the Princess Margaret Hospital for 25 of its 30 year existence and was one of the clinicians who helped the institute to achieve an international reputation. He brings this experience to Nova Scotia and he has the mandate to re-structure the clinic through multi-disciplinary tumour site groups. This will be an exciting phase in the life of the Foundation and the proposed changes will allow us to develop along the lines proposed in various external reviews and codified in the Dickson Report of 1979.

Several staff are involved in various clinical trials through the clinical trials division and in association with the NCIC and other groups.

During the past year we had a total of 1,746 patients commencing radiation treatment for a total of 19,646 treatment visits. In this respect the department acknowledges the support and dedication of the staff of the radiation technology department and medical physics.

We are hoping to expand our brachytherapy program and following our initial work with hyperthermia hope to be able to combine these modalities in clinical research programs during the next year. A temperature mapping system has been under development aided by a grant from NSERC using techniques devised by Dr. Hugh Jones, professor of engineering and physics at the Technical University of Nova Scotia. His work is approaching completion and it is expected that the clinical model will be available within the next one to two years and so will permit a more scientific approach to the use of hyperthermia in the treatment of cancer.

The department strives to provide optimum treatment for patients with malignant disease and emphasizes both the quality of life as well as survival itself. It is recognized that most patients require several different treatment modalities during the course of their disease and the department is a strong advocate of multi-disciplinary care. However, in order to participate in the areas where radiation oncology is needed there will have to be an increase in the number of medical staff. During the past year the staff shortage has been lessened with the employment of clinical associates. These physicians have assisted with the history taking and physical examinations and participated under supervision in the care and follow-up of patients. The contribution of the clinical associates, especially with their help with our inpatients, is well recognized and we hope to be able to obtain permanent funding for these positions. Indeed, the department could not have functioned as it has during the last year without their support. Our sincere thanks go to Drs. Nazlin Bata and Celina Dunn.

RADIOTHERAPY DEPARTMENT

This has been a difficult year for the department with both positive and negative phases as we strive to meet our objectives. We have a staff of 19 including 13 certified radiation technologists. During the year our statistics showed that there were 19,646 patient visits with a total of 1,746 patients commencing courses of radiotherapy. Treatment on the linear accelerators accounted for 9,800 and the cobalt units for 8,778 patient visits while the electron beam x-ray units showed 726 and 342 patient visits respectively. Altogether there were 1,249 new and 497 old patients of whom 1,012 were inpatients and 734 outpatients.

During the year we have worked to improve the data recorded on the radiation therapy charts and have promoted staff education through in-house seminars and attendance at conferences. We participated in the development of the Mission Statement and with the production of the educational video to help new patients understand the process of radiotherapy. A quality assurance program was also established and a study using digital point files found a treatment accuracy of less than 5 mm in 75% of patients.

SCHOOL OF RADIATION THERAPY

The two year program for radiation therapy technologists commences in September of each year. The didactic course is held at the Toronto School of Radiation Therapy in the Princess Margaret Hospital and lasts 26 weeks. During this time students can stay at the residence adjacent to the hospital. Clinical training and supplementary lectures that comprise the rest of the course are carried out in the CTRFNS Halifax Clinic. We are approved to have four students at any one time with two starting each year. There is a world-wide shortage of technologists and an attempt will be made to increase our numbers to six. This intake should satisfy our immediate needs and help with those for the other Atlantic Provinces. Last September we graduated three students and we offer our congratulations to them. Penny Edmonds has joined our staff while Alma van de Reit has gone to Saint John, New Brunswick and Leslie Adcock to the British Columbia Cancer Agency in Vancouver.

Mrs. Janet Garrison, the program coordinator, is a member of the Canadian Society of Radiation Technologists Council on Education. This is an active committee and during the year it has recommended major changes in the certification examination and in the curriculum, with special reference to quality assurance. This will increase the length of the program to 36 months starting in 1989.

SURGICAL ONCOLOGY AND MEDICAL SPECIALTIES DEPARTMENT

This department consists of five divisions and continues to play an active role within the CTRFNS.

1. Gynaecologic Oncology
2. Otolaryngology
3. Medicine - Skin Neoplasm Clinic
4. Surgical Oncology
5. Urology

GYNAECOLOGIC ONCOLOGY

Director - Robert C. Fraser, M.D.

This multi-disciplinary clinic operates on Tuesday and Friday mornings throughout the year. Drs. Robert Fraser, John Jeffrey and Greg Tompkins staff the clinic together with radiation oncologists Drs. John Filbee and Paul Joseph and medical oncologist, Dr. Ron MacCormick. In addition, we have a close association with Cape Breton and conduct a quarterly follow-up clinic in association with Drs. K. MacLennan and R. Andrews. Our fellow in gynaecologic oncology, Dr. Aboud Abdou, is reviewing our experience with age-related factors in the prognosis of women with cervical cancer. Dr. Jeffrey presented papers at the Atlantic Society of Obstetricians and Gynaecologists of Canada. He was also a visiting professor to the University of Calgary where he presented papers on the "Nova Scotia Experience with Gestational Trophoblastic Disease" and "The Prognosis of Uterine Sarcoma". Clinical trials in association with the National Cancer Institute of Canada continue as an important function of the division. We are planning additional trials for the use of second-line agents in ovarian cancer and for recurrent carcinoma of the cervix. In addition, we are exploring the use of chemotherapy in association with radiation for squamous cell carcinomas of the vulva.

Dr. Jeffrey was appointed director of the division of gynaecologic oncology with the Department of Obstetrics and Gynaecology at Dalhousie University and is also the program director in gynaecologic oncology in the Department of Gynaecology at the Victoria General Hospital. During the year we were privileged to have as our guest, Mr. John Monaghan, head of the Department of Gynaecology and division of gynaecologic oncology at Newcastle-on-Tyne, England.

Altogether during the year there were 2,487 patient visits which included 175 new patients. There were also 246 patient visit to the Cape Breton gynaecologic oncology follow-up clinic. The most common tumours involved the cervix uteri in 180, the corpus uteri in 182 and the ovary in 183 patients. Further details can be found in the Cancer Registry statistics.

OTOLARYNGOLOGY

Director - E. Attia, M.D.

This clinic is held weekly on Tuesday mornings at the Halifax Infirmary. The clinic is being expanded to ensure multi-disciplinary care and to provide a provincial resource tertiary referral centre for malignancies of the head and neck. Staff include personnel from radiation oncology, general surgery, speech pathology, nursing, therapeutic dietetics and social work in addition to the otolaryngology surgeons to ensure comprehensive care is given in a multi-disciplinary setting. Every second week multi-disciplinary rounds are incorporated into the clinic and further expansion is seen for the next year.

The clinic is housed in the Nova Scotia ENT Department of the Halifax Infirmary and we have had to make special arrangements between the clinic and the CTRFNS. Last year there were 1,233 oncology visits including 324 new patients.

The aim of the department is to deliver quality care and to have patients assume an active and informed role in their own therapy. We're committed to the multi-disciplinary team approach and towards the meticulous rehabilitation of patients. This individualized approach identifies and anticipates the needs of the patient and family in all phases of their care and enables many patients to function productively in their own settings. Next year we look forward to developing planned programs including the development of protocols for all tumour sites and stages of disease and to the establishment of a weekly working conference.

MEDICINE - SKIN NEOPLASM CLINIC

Director - J. Barry Ross, M.D.

This weekly clinic on Tuesday afternoons is staffed alternately by Drs. J. B. Ross and Jennifer Klotz. A dermatology resident assists in the clinic which also offers instruction to senior medical students. At the same time Dr. Steven Norvell has a melanoma clinic and is available for surgical consultation. Until his retirement, Dr. Dugald Thomson provided radiotherapy consultation and he will be replaced next year by Dr. Peter Fitzpatrick who headed the skin cancer clinic at the Princess Margaret Hospital for many years.

Last year the number of patient visits increased from 240 to 363 and the number of new patients from 25 to 66. We hope that this modest climb in statistics will increase as we develop a true multi-disciplinary skin cancer clinic. The clinic is available to treat patients with malignancies of the skin as well as to review dermatologic problems in patients with other cancers. In addition, we are a tertiary referral centre and available to provide a second opinion for difficult cases.

SURGICAL ONCOLOGY

Director - Audley Bodurtha, M.D.

The Department of Surgery, CTRFNS functions as part of the multi-disciplinary approach to the care of the cancer patient. This is achieved through multi-disciplinary clinics in musculoskeletal and melanoma oncology and by parallel clinics conducted in association with the department of medical oncology in breast and gastrointestinal tumours. A follow-up clinic is held for patients with thoracic and head and neck tumours. Seven staff members of the department of surgery conduct 11 clinics per week and cover six major oncology tumour sites. A total of 198 new patients were evaluated and continuing care was provided to patients in 3,554 patient visits.

The department was involved with seven clinical trials conducted through the clinical trials division of the CTRFNS. We anticipate major changes in the coming year with the restructuring of the clinic and in which the Department of Surgery will play a major part in developing clinical programs and protocols.

UROLOGY

Director - Philip Belitsky, M.D.

A clinic is held every Wednesday morning and is attended by Dr. Belitsky together with a resident from the Dalhousie program in Urology and senior medical students. The clinic is responsible for the important functions of patient care and teaching. During the year 176 patients were seen for a total of 424 visits. Included in this case load are 79 patients for instillation of medications into the bladders of patients with a high risk for local recurrence. An analysis of this experience demonstrated a significant benefit in terms of preventing further local recurrence within the bladder and was reported at the Canadian Urological Association at its annual meeting.

PUBLICATIONS

1. Andrew, J.W., Aldrich, J.E. Comments on Dosimetric Aspects of a Rotating Beam Splitter Used in Tangential Field Breast Treatment. *Medical Physics* 15, 429-421, 1988.
2. Aldrich, J.E., Andrew, J.W. Self-Adhesive Lead Shielding, in preparation.
3. Andrew, J.W., Aldrich, J.E., Hale, M.E., Berry, J.A. A Computerized Digital Video System for Contour Acquisition and Compensator Design. *Physics in Med. and Biol.* 33, Supplement 1, 51, 1988 (abstract).
4. Aldrich, J.W., Filbee, J.F., Tompkins, M.G. Flexible Applications for Gynaecology: Early Clinical Results, *Brachytherapy* 2, Ed. Mould, Nucletron, Netherlands, 1989.
5. Aldrich, J.W., Jackson, S. The Role of Masking Tape. *HPA Bulletin*, 1989.
6. Woods, E., Iles, S., Jackson, S. Comparison of Scintigraphic Diagnostic Criteria in Suspected Pulmonary Embolism. *Journal Canadian Association Radiology* 1989 40, p 194-197, 1989.
7. Daniels, C., Fraser, D.B., MacKay, J., MacGregor, J. Variations in Fluoroscopic and Spot Film Techniques during Extracorporeal Shock Wave Lithotripsy. *Journal of Urology* 141, p 489-491, March 1989.

PRESENTATIONS

1. Daniels, C. Radiation Protection for Technologists. 48th Annual Congress of the Nova Scotia Society of Medical Radiation Technologists. Antigonish, May 12, 1988.
2. Daniels, C., Fraser, D.B. Patient and Staff Radiation Doses during Extracorporeal Shockwave Lithotripsy. 51st Annual Meeting, Canadian Association of Radiologists, Edmonton, June 13, 1988.
3. Andrew, J.W., Aldrich, J.E., Hale, M.E., Berry, J.A. A Computerized Digital Video System for Contour Acquisition and Compensator Design. World Congress on Medical Physics and Biomedical Engineering, San Antonio, Texas, August, 1988.
4. Pass, B., Aldrich, J.E. Radiation Dosimetry of Nuclear Veterans Using EST of Dental Enamel. Health Physics Society Annual Meeting, Boston, Mass., July 4-8, 1988.
5. Aldrich, J.E., Filbee, J.F., Tompkins, M.G. Flexible Applicators for the Treatment of Gynaecological Malignancies: Early Clinical Results. 5th International Selectron Users Meeting, The Hague, September 1988.
6. Aldrich, J.E., Pass, B. Radiation Dosimetry of Nuclear Veterans Using EST of Dental Enamel. 14th Gray Conference, Oxford, September 1988.
7. Aldrich, J.E. The Use of Digital Video Techniques for Radiotherapy Compensator Production. Bristol General Hospital, September 1988.
8. Aldrich, J.E. Portal Imaging. Digital Imaging Technology for Oncology Conference, Vancouver, October 1988.
9. Daniels, C. Technical Pitfalls of Mammography. Annual Scientific Meeting, Atlantic Provinces Radiologists, Halifax, October 1988.
10. MacGregor, J.H., Daniels, C. A Computerized Audit Program of a Mammography Practice. Annual Scientific Meeting, Atlantic Provinces Radiologists, Halifax, October 1988.
11. Computers in Medical Imaging. Invited Lecture, Queens University, Kingston, Ontario, November 1988.
12. Daniels, C. Computers in Radiology (Applications in Mammography). Continuing Education Seminar of Nova Scotia Society of Technologists, Halifax, November 1988.
13. Daniels, C. Quality Control and Dose Levels in Mammography. General Electrical Mammography User's Symposium, Moncton, November 1988.

FINANCIAL STATEMENTS

**for the year ending
March 31, 1989**

FINANCIAL STATEMENTS

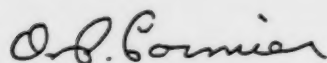
Year Ended March 31, 1989

AUDITOR'S REPORT

To the Chairman and Members
of the Cancer Treatment and
Research Foundation of Nova Scotia

I have examined the balance sheet of the Cancer Treatment and Research Foundation of Nova Scotia as at March 31, 1989 and the statements of general fund revenues and expenses and continuity of special fund for the year then ended. My examination was made in accordance with generally accepted auditing standards and accordingly, included such tests and other procedures as I considered necessary in the circumstances.

In my opinion, these financial statements present fairly the financial position of the Foundation as at March 31, 1989 and the results of its operations for the year then ended in accordance with the accounting policies stated in Note 2 to the financial statements, applied on a basis consistent with that of the preceding year.



O. P. Cormier, F.C.A.
Auditor General

Halifax, Nova Scotia
July 21, 1989

BALANCE SHEET

As at March 31, 1989

ASSETS

General Fund

Short term investments
Accounts receivable
Employee advances
Prepaid expenses
Due from Province of Nova Scotia
(Note 3)
Due from Special Fund

1989	1988
\$ —	\$ 280,771
279,504	258,691
1,948	6,701
126,689	133,351
268,845	317,075
417,716	123,743
<u>\$ 1,094,702</u>	<u>\$ 1,120,332</u>

Special Fund

Cash
Short term investments
Accounts receivable

\$ 185,140	\$ 29,313
514,018	353,823
110,685	70,637
<u>\$ 809,843</u>	<u>\$ 453,773</u>

LIABILITIES AND FUND BALANCES

General Fund

Bank overdraft
Accounts payable and accruals
Unearned income

1989	1988
\$ 230,780	\$ 50,563
697,022	918,169
166,900	151,600
<u>\$ 1,094,702</u>	<u>\$ 1,120,332</u>

Special Fund

Due to General Fund

\$ 417,716	\$ 123,743
------------	------------

Fund Balances

Radiation Oncology Trust Fund
Tumor Clinic Research Fund
Trial Funds
Restricted Funds (Note 4)
Unrestricted Funds

6,067	4,811
2,791	2,791
(6,990)	3,168
106,119	62,297
284,140	256,963
<u>392,127</u>	<u>330,030</u>
<u>\$ 809,843</u>	<u>\$ 453,773</u>

GENERAL FUND Statement of Revenues and Expenses

For the Year Ended
March 31, 1989

Revenues	1989	1988
Nova Scotia Department of Health and Fitness		
Insured services	\$ 4,005,600	\$ 3,638,400
Capital equipment	115,111	17,765
Hospital services	959,290	899,785
Reciprocal billings	58,841	74,862
Non-insured services	26,814	46,875
Other	13,788	10,304
	<u>5,179,444</u>	<u>4,687,991</u>
 Expenses		
Nursing services	745,174	705,886
Technical services	532,212	407,801
Laboratory services	86,858	80,805
Radiation oncology services	652,733	551,563
Medical oncology services	385,362	350,255
Epidemiology services	31,749	(50)
School services	28,796	28,736
Medical physics	776,990	694,605
Health records	512,310	608,275
Clinic administration	761,475	784,740
Administration	393,959	397,369
Data processing	123,779	107,733
Research and development	922	6,270
Capital equipment	115,111	17,765
	<u>5,147,430</u>	<u>4,742,753</u>
 Excess (deficiency) of Revenues Over Expenses	<u>\$ 32,014</u>	<u>\$ (54,762)</u>

CONTINUITY OF SPECIAL FUND

For The Year Ended
March 31, 1989

	Radiation Oncology Trust Fund	Tumor Clinic Research Fund	Trial Funds	Restricted Funds	Unrestricted Funds	Total 1989	Total 1988
Balance, beginning of year	\$ 4,811	\$ 2,791	\$ 3,168	\$ 62,297	\$ 256,963	\$ 330,030	\$ 260,532
Add: Donations	2,414	—	44,593	43,822	26,659	117,488	126,740
Investment Income	367	—	—	—	61,965	62,332	53,117
	<u>2,781</u>	<u>—</u>	<u>44,593</u>	<u>43,822</u>	<u>88,624</u>	<u>179,820</u>	<u>179,857</u>
Less: Clinical research	—	—	54,751	—	—	54,751	74,289
Research Grant	—	—	—	—	18,884	18,884	16,848
Special projects	—	—	—	—	37,008	37,008	—
Bad debt expense	—	—	—	—	5,551	5,551	1,204
Other expense	1,525	—	—	—	4	1,529	18,018
	<u>1,525</u>	<u>—</u>	<u>54,751</u>	<u>—</u>	<u>61,447</u>	<u>117,723</u>	<u>110,359</u>
Balance, end of year	<u>\$ 6,067</u>	<u>\$ 2,791</u>	<u>\$ (6,990)</u>	<u>\$ 106,119</u>	<u>\$ 284,140</u>	<u>\$ 392,127</u>	<u>\$ 330,030</u>

NOTES TO FINANCIAL STATEMENTS

March 31, 1989

1. Authority

The Cancer Treatment and Research Foundation of Nova Scotia was established by the Cancer Treatment and Research Foundation Act which was proclaimed on November 25, 1980.

The objectives of the Foundation are to operate multi-disciplinary facilities for the diagnosis and treatment of cancer, research into problems relating to cancer and to offer related assistance, education and training.

2. Accounting Policies

These financial statements have been prepared in accordance with generally accepted accounting principles modified by the policy of charging furniture and equipment purchases to expense in the year of acquisition. This expense is charged to the General Fund.

3. Due from the Province of Nova Scotia

An excess of expenses over revenues in the General Fund is normally recoverable from the Province of Nova Scotia. An excess of revenues over expenses normally reduces the amount owing from the Province. This account balance represents the net accumulated deficits and surpluses being claimed by the Foundation.

As a result of reviews completed by the Department of Health and Fitness for the fiscal years 1985 to 1988, the Department has indicated that they will not cover the total deficits claimed by the Foundation. The amounts disallowed are presently under appeal by the Foundation as detailed on the following schedule.

	March 31, 1989	March 31, 1988
Amounts under Appeal		
1985	\$ 30,966	\$ 30,966
1986	60,830	60,830
1987	118,299	149,960
1988	65,319	75,319
	275,414	317,075
Add: 1989 Equipment Claim Outstanding	25,445	—
	300,859	317,075
Less: 1989 Excess of Revenues over Expenses	32,014	—
	\$ 268,845	\$ 317,075

4. Restricted Funds

Certain doctors have entered into an agreement with the Foundation that permits them to provide personal medical services and receive Medical Services Insurance payments to a set limit. MSI payments received by the doctors, in excess of agreed upon amounts, are remitted to the Foundation. These amounts are accounted for as a special fund and payments from it must be approved by the Department of Health and Fitness.

ANNUAL REPORT

**PROVINCIAL
CANCER REGISTRY**

January 1, 1988 to December 31, 1988

1988 CANCER INCIDENCE REPORT

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NOVA SCOTIA CANCER REGISTRY REPORT

The Cancer Treatment and Research Foundation of Nova Scotia maintains our province's cancer registry. This registry was established in 1964 and so there is now the potential for a wealth of experience to study trends in cancer in this province and to compare them with others in Canada and around the world. New cases are identified from various sources. Its main purpose at present is to reflect the incidence of different cancers overall and in specific regions.

Some cancers such as those of the skin, testes and some lymphomas are readily cured as can some others if detected at an early stage. However, the results of treatment for the most common cancers have barely changed in 50 years. These include those of the breast, lung and gastrointestinal tract, and if the results of cancer treatment are to be improved then we must make a dent in their statistics.

Today, approximately one in three persons will develop a malignancy at sometime during their lives. In Canada it is estimated that in 1989 there will be 101,000 new cases of cancer of whom 52,000 will die from their disease. Only heart disease is a greater cause of death. Cancer gets more common as we get older and in 1989 11% of our population were over 65 and this group accounted for 40% of the health care costs. By 2009 it is estimated that 25% of the population will be over 65 and it is impossible to estimate the potential costs. Health care costs in Canada, as elsewhere in the western world, are escalating and now account for approximately 30% of government budgets. In 1975 they cost 12 billion and in 1985, the last year for which numbers are available, they reached 40 billion dollars. If costs are to be contained, as they must, 'preventable cancers' must be prevented and the others subjected to the best treatment but with fiscal responsibility.

In the battle against cancer, tumour registries are most important and are indispensable to the program of health care workers. We are fortunate in Nova Scotia to have a good registry, but it is continually being improved so that it can work more efficiently for the benefit of all.

Dr. P. Fitzpatrick, MB, BS, FRCP(C) FRCR
Physician-in-Chief
CTRF of Nova Scotia

1989 December

GUIDE TO 1988 CANCER INCIDENCE REPORT

The goals again for 1988, as in the 1987 Incidence Report are:

To improve the quality of the information and to maintain comparability of this report to previous publications. Comparability is important since it facilitates evaluation of cancer trends over time.

The most important changes this year are the increased reporting of childhood malignancies and the reduction in the number of missing county codes for incident cases. In 1987 the number of missing county codes for total cancer (females 2485, males 2641) were females 464 or 19% and males 457 or 17%. In 1988 for all cancer (females 2552 and males 2639) this number and percentage has been reduced for females to 102 or 4% and males to 102 or 3%. (See pages entitled 'Reported Cases by County [total cancers] Females and Males.) The majority of the remaining missing county codes relate to cases of insitu and skin. We are grateful for the extra effort made in many Health Record Departments across Nova Scotia. Without complete, or nearly complete county coding, the validity of comparisons among geographic areas becomes questionable.

With the continued support of our three main sources of cancer registration, namely hospital Health Records, Pathology Departments, and the Provincial Vital Statistics Departments, in supplying us with data on a timely basis, the Registry is able to provide and publish current cancer statistics.

To remain consistent with the 1987 Report, the insitu (non-invasive) cancers and non-melanoma skin cancers have been separated from other cancers.

Again this year, age adjusted rates have not been calculated for some of the rare cancers because the small number of cases in some age groups would result in such rates being unreliable and potentially misleading. In all age adjusted calculations, except for Total Incidence — Male and Female, the 80-90 and 90+ age groups have been combined. It should be noted that 1988 Nova Scotia population figures were used for all incidence rate calculations.

In October 1988 Dr. Eric Mintz, who was instrumental in helping us provide age standardized rates, moved to Ontario. He was replaced by another epidemiologist, Dr. Grace Johnston, whose primary interest is the quality of our data.

For the first time the Nova Scotia Cancer Registry was the site of a practicum for students in the Health Record Administration Program and this development has been mutually beneficial. We welcome opportunities for further interaction in education and research.

In May 1989 Dr. D. H. Thomson retired as our director; however, we are pleased to welcome Dr. Peter Fitzpatrick as Physician-in-Chief. Under his leadership the CTRF is certain to make further advances in research, teaching and service.

Any queries you may have regarding the 1988 Cancer Registry Incidence Report are welcome and may be directed through me.

Thelma Croucher, CCHRA (C)
Director, Nova Scotia Cancer Registry

1989 December

PRIMARY SITES BY AGE GROUPING - MALES (1988)
(EXCLUDING NON-MELANOMA SKIN & INSTIU)

SITE	ICD-O CODE	AGE BREAKDOWN											TOTAL	INCID. PER 100,000	AGE ADJUSTED RATE **
		0- 9	10- 19	20- 29	30- 39	40- 49	50- 59	60- 69	70- 79	80- 89	90+ 90+	NOT AVAL			
Lip	140			1		3	3	7	2	5			5	1.17	4.32
Tongue	141						2	2	1						1.11
Mouth Other	142-145					1	5	7	6	1			21	4.90	
Pharynx;Tonsil	146-149			1			6	4	6				17	3.97	
Esophagus	150					2	3	8	8		2		23	5.37	
Stomach	151			2	2	2	13	16	27	12	4		76	17.74	
Small Bowel	152				1			2	3				6	1.40	
Colon - Rectum	153-154			8	15	34	89	88	34	3			271	63.27	15.09
Liver; Gallbladder	155-156			1		1	7	11	3				23	5.37	54.31
Pancreas	157				3	9	19	13	4	1			49	11.44	10.10
Peritoneum	158-159							1	3	1	1		6	1.40	
Nasal Cavities	160							2	1				3	0.70	
Larynx	161				1	1	6	10	14	2			35	8.17	6.89
Lung; Pleura	162-163				4	11	67	149	147	40	5	1	404	98.99	85.56
Mediastinum	164			1	1				1				3	0.70	9.51
Bone Marrow	169	3	1	1	1	2	5	11	16	7			47	10.97	
Bone; Soft Tissue	170-171			2	5		3	2	3	1			16	3.74	
Skin - Melanoma	173		1	2	3	11	6	14	4	3		1	46	10.51	
Breast	175					1	1			1			3	0.70	9.37
Prostate	185			1		1	22	92	150	72	10		348	81.24	66.26
Testis	186		1	5	8	1							15	3.50	
Penis	187							2	3	2			7	1.63	
Bladder	188				3	6	15	37	47	19	5		132	30.82	26.01
Kidney; Ureter	189	2	1		2	9	14	14	21	7	1		71	16.58	14.66
Eye; Lacrimal Gland	190						2		1	1			4	0.93	6.12
Brain; Nervous System	191-192	3		5	3	1	4	6	4	1	1		28	6.54	
Endocrine	193-194						1	2	1				4	0.93	
Lymph Nodes	196	2	3	9	8	13	9	14	13	6	2		79	18.44	16.75
Unknown Primary	199				1	6	10	22	32	12	1		84	19.61	
TOTAL		10	7	27	52	90	241	539	626	234	35	4	1866		

** AGE ADJUSTED RATES NOT CALCULATED FOR RARE CANCER SITES
(STANDARDIZED TO 1981 CANADIAN POPULATION)

PROVINCIAL CANCER REGISTRY OF NOVA SCOTIA

PRIMARY SITES BY AGE GROUPING - FEMALE (1988)
(EXCLUDING NON-MELANOMA SKIN & INSITU)

SITE	ICD-O CODE	AGE BREAKDOWN											INCD. PER 100,000	AGE ADJUSTED RATE **
		0- 9	10- 19	20- 29	30- 39	40- 49	50- 59	60- 69	70- 79	80- 89	90+ 90+	TOTAL		
Lip	140											6	0.00	
Tongue	141						1	1	2	2		7	1.36	
Mouth Other	142-145			1			2		4			6	1.59	
Pharynx; Tonsil	146-149				1	1	3	2				6	1.36	
Esophagus	150							2	4	4	1	11	2.50	
Stomach	151			1	1		6	6	16	15	2	47	10.67	8.71
Small Bowel	152					1	2	1	2			6	1.36	
Colon - Rectum	153-154			1	1	13	29	65	90	62	10	271	61.51	50.91
Liver; Gallbladder	155-156			1			2	7	8	7	2	27	6.13	
Pancreas	157						2	7	19	9	2	41	9.31	7.01
Peritoneum	158-159					2		1	2		1	6	1.36	
Nasal Cavities	160							1	1			2	0.45	
Larynx	161							3	3			6	1.36	
Lung; Pleura	162-163				2	14	41	67	56	12	4	196	44.49	39.64
Mediastinum	164												0.00	
Bone Marrow	169	5	1	1	2	3	13	6	24	4	1	60	13.62	12.19
Bone; Soft Tissue	170-171		1	2	2	2	5	6	5	2		25	5.67	
Skin - Melanoma	173			6	13	7	7	8	7	5	1	54	12.26	11.12
Breast	174			1	25	59	79	137	98	44	4	448	102	90.00
Cervix Uteri	180			6	11	10	11	13	10	2	1	64	14.53	13.37
Corpus Uteri	182				1	6	19	26	17	5		74	16.80	15.31
Ovary; Fallopian Tube	183			3	5	7	17	16	19	5	2	74	16.80	15.16
Other Female Genital	184				2		1	4	5	4		16	3.63	
Bladder	188		1		1	3	6	8	17	6	4	46	10.44	8.78
Kidney; Ureter	189			1	2	2	5	7	15	8	1	42	9.53	7.80
Eye; Lacrimal Gland	190						1	1		2		4	0.91	
Brain; Nervous System	191-192	2	1	1	1	2	5	5	4	3		24	5.45	5.05
Endocrine	193-194			3	2	7	3	3	4			22	4.99	
Lymph Nodes	196			3	3	3	5	18	8	9	1	50	11.35	9.90
Unknown Primary	199				3	3	9	15	27	10	3	70	15.89	
TOTAL		7	4	30	78	145	274	436	467	220	40	4	1705	

** AGE ADJUSTED RATES NOT CALCULATED FOR RARE CANCER SITES
(STANDARDIZED TO 1981 CANADIAN POPULATION)

PROVINCIAL CANCER REGISTRY OF NOVA SCOTIA

CASES OF NON-MELANOMA SKIN & INSITU CARCINOMAS FOR 1988

MALES

SITE	ICD-O CODE	AGE BREAKDOWN											TOTAL
		0- 9	10- 19	20- 29	30- 39	40- 49	50- 59	60- 69	70- 79	80- 89	90+ 99	NOT AVAL	
Mouth (Other)	143							1					1
Hypopharynx	148							1					1
Stomach	151									1			1
Colon-Rectum	153-154								1				1
Larynx	161						1	1					2
Skin - Non Melanoma	173			4	23	78	112	214	199	94	12	13	749
Melanoma Insitu				2	2		4	1	2				11
Prostate	185						1	1	1				3
Bladder	188							2	1				3
Kidney	189								1				1
TOTAL				6	25	78	118	220	206	95	12	13	773

PROVINCIAL CANCER REGISTRY OF NOVA SCOTIA

CASES ON NON-MELANOMA SKIN & INSITU CARCINOMA FOR 1988

FEMALES

SITE	ICD-O CODE	AGE BREAKDOWN											NOT AVAIL
		0- 9	10- 19	20- 29	30- 39	40- 49	50- 59	60- 69	70- 79	80- 89	90+		
Tongue	141						1					1	
Mouth - Other	142-145						1					1	
Colon - Rectum	153-154								1	1		2	
Lung	162							1				1	
Skin - Non Melanoma	173		2	9	28	54	103	122	158	105	28	617	
Melanoma Insitu			1	1	1	2	2	2				9	
Breast	174					4	5	5	7			21	
Cervix Uteri Insitu	180		1	70	78	11	2	4	1		1	168	
Corpus Uteri	182					1		2				3	
Ovary, Fallopian Tube	183					1		1		1		3	
Other Female Genital	184			4	5	6	1		1			16	
Bladder	188						1					1	
Eye;Lacrimal Gland	190				1				1			2	
TOTAL		4	84	113	79	79	116	137	169	107	29	847	

PROVINCIAL CANCER REGISTRY OF NOVA SCOTIA

**INCIDENCE OF CANCER WITHIN AGE GROUPS
(MALES)**

AGE BREAK DOWN	1988	
	ACTUAL # OF CASES	INCIDENCE PER 1000
0 - 9 YEARS	10	.1621
10 - 19 YEARS	7	.1023
20 - 29 YEARS	27	.3403
30 - 39 YEARS	52	.7402
40 - 49 YEARS	90	1.699
50 - 59 YEARS	241	6.225
60 - 69 YEARS	539	16.22
70 - 79 YEARS	626	28.79
80 - 89 YEARS	234	34.96
90+ YEARS	36	41.7
AGE UNAVAILABLE	4	
TOTAL	1866	4.33

AGE ADJUSTED RATES 3.74 *

5.28 **

* Excludes Non-Melanoma Skin & Insitu Cancers

**Includes all Cancers

(Both Standardized to 1981 Canadian Population)

PROVINCIAL CANCER REGISTRY OF NOVA SCOTIA

INCIDENCE OF CANCER WITHIN AGE GROUPS

(FEMALES)

AGE BREAK DOWN	1988	
	ACTUAL # OF CASES	INCIDENCE PER 1000
0 - 9 YEARS	7	.1186
10 - 19 YEARS	4	.0619
20 - 29 YEARS	30	.3880
30 - 39 YEARS	78	1.093
40 - 49 YEARS	145	2.729
50 - 59 YEARS	274	6.921
60 - 69 YEARS	436	11.35
70 - 79 YEARS	467	16.41
80 - 89 YEARS	220	18.04
90+ YEARS	40	15.43
AGE UNAVAILABLE	4	
TOTAL	1705	3.82

AGE ADJUSTED RATES **3.37** *

5.06 **

* Excludes Non-Melanoma Skin & Insitu Cancers

**Includes all Cancers

(Both Standardized to 1981 Canadian Population)

PROVINCIAL CANCER REGISTRY OF NOVA SCOTIA

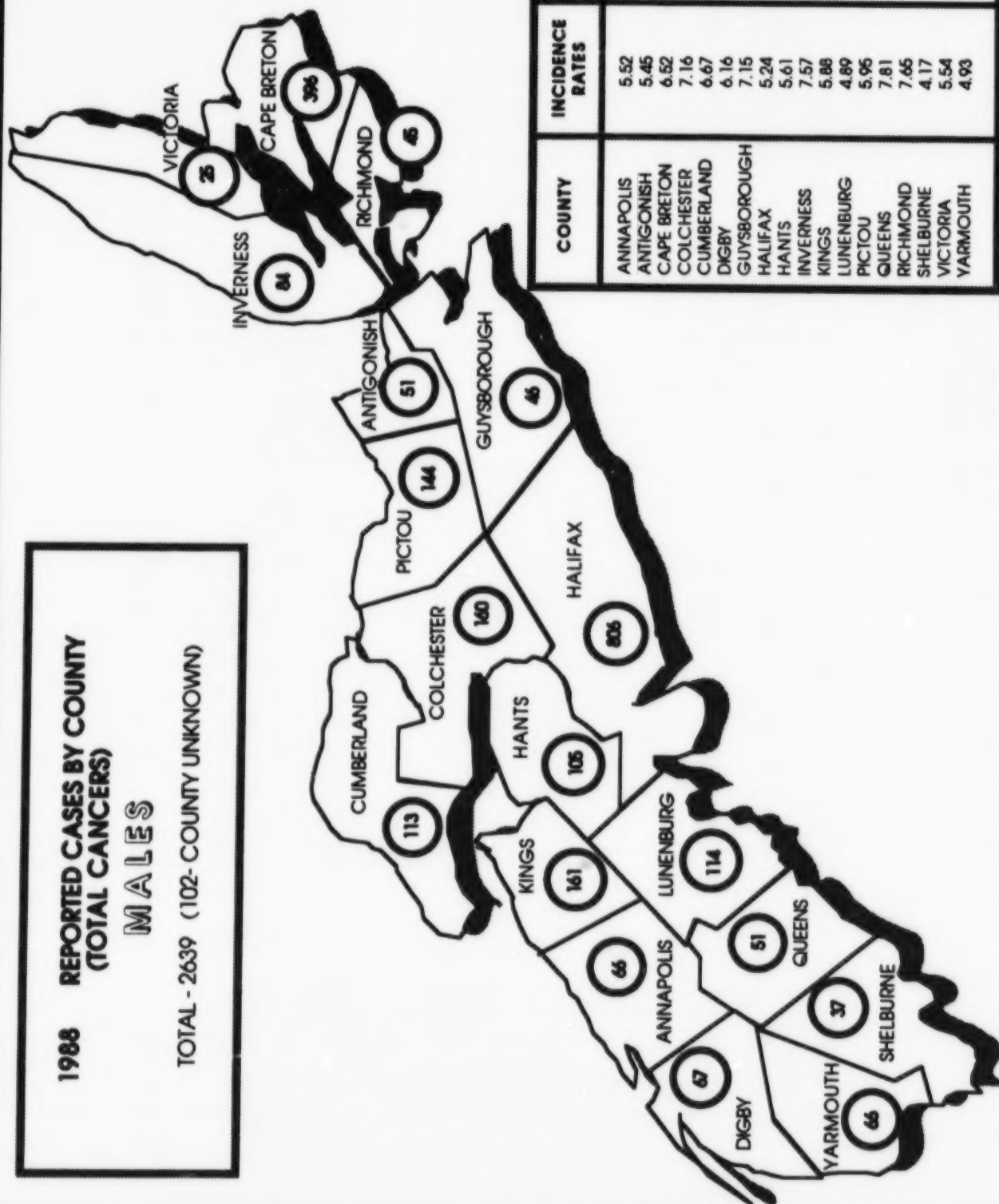
POPULATION TABLES BY AGE GROUPINGS
(USED IN 1988 INCIDENCE CALCULATIONS)

AGE BREAK DOWN	1988 NOVA SCOTIA			STANDARD 1 1981 NOVA SCOTIA			STANDARD 2 1981 CANADA		
	MALES			FEMALES			TOTAL		
	MALES	FEMALES	TOTAL	MALES	FEMALES	TOTAL	MALES	FEMALES	TOTAL
0 - 9	61,708	59,044	120,752	64,735	61,835	126,570	1,826,390	1,733,845	3,560,235
10 - 19	68,409	64,660	133,059	80,970	76,710	157,680	2,166,755	2,069,005	4,235,760
20 - 29	79,333	77,320	156,653	74,360	75,235	149,595	2,258,705	2,262,720	4,521,425
30 - 39	70,249	71,364	141,613	61,065	60,325	121,390	1,843,775	1,825,055	3,668,830
40 - 49	52,964	53,131	106,095	42,350	41,845	84,195	1,309,370	1,283,885	2,593,255
50 - 59	38,717	39,591	78,308	37,955	40,255	78,210	1,190,045	1,233,345	2,423,390
60 - 69	33,233	38,401	71,634	33,195	37,120	70,315	852,970	970,680	1,823,650
70 - 79	21,746	28,455	50,201	18,470	22,740	41,210	461,705	604,365	1,066,070
80 - 89	6,694	12,192	18,886	5,640	9,965	15,605	138,950	248,780	387,730
90+	863	2,593	3,456	830	1,855	2,685	19,610	43,235	62,845
TOTAL	433,916	446,741	880,657	419,570	427,885	847,455	12,088,275	12,272,915	24,361,190

1988 REPORTED CASES BY COUNTY (TOTAL CANCERS)

MALES

TOTAL - 2639 (102- COUNTY UNKNOWN)



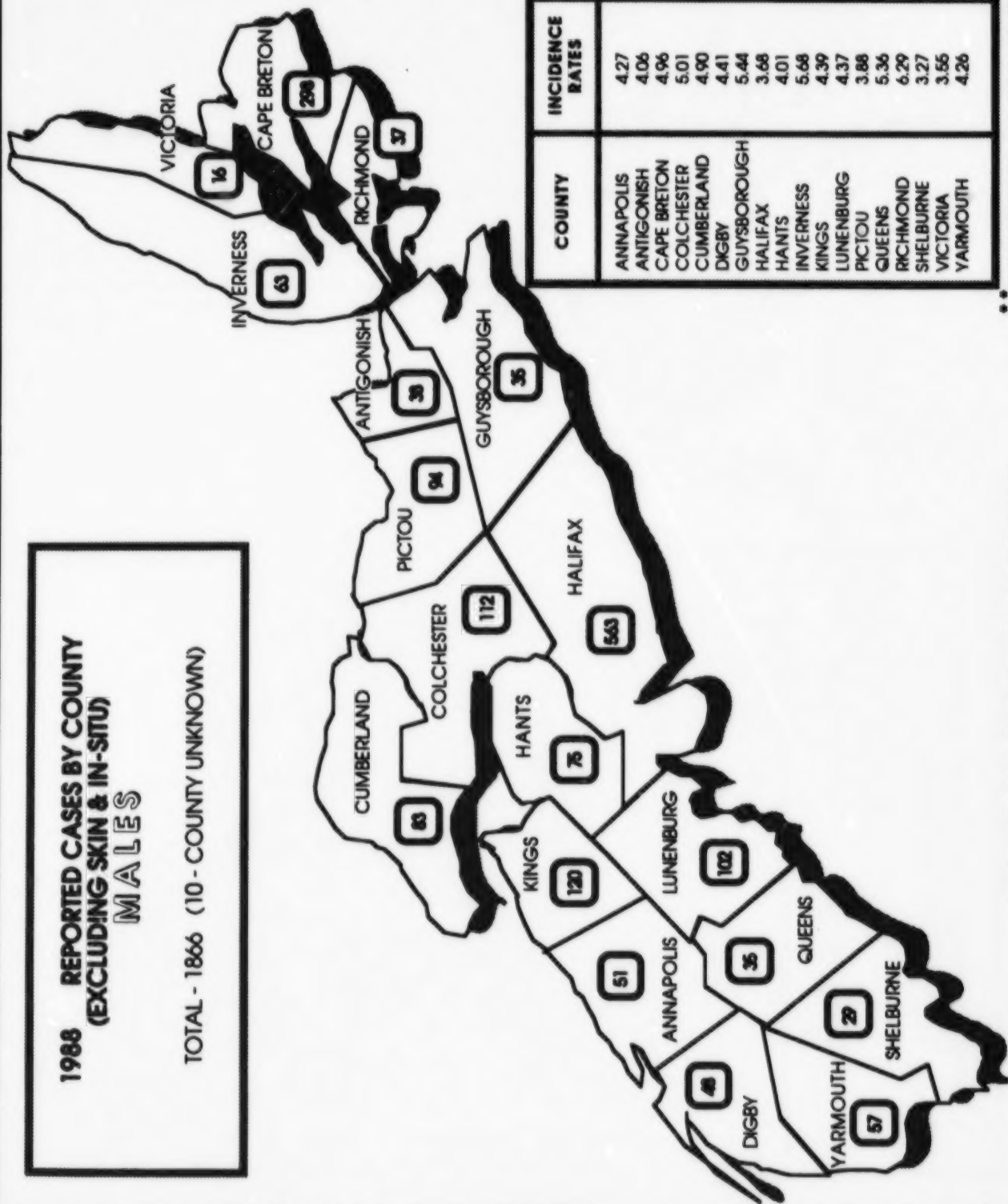
COUNTY	INCIDENCE RATES	AGE ** ADJUSTED RATES
ANNAPOLIS	5.52	4.51
ANTIGONISH	5.45	5.60
CAPE BRETON	6.52	6.05
COLCHESTER	7.16	6.19
CUMBERLAND	6.67	4.86
DIGBY	6.16	4.63
GUYSBOROUGH	7.15	5.48
HALIFAX	5.24	6.15
HANTS	5.61	5.60
INVERNESS	7.57	6.73
KINGS	5.88	5.43
LUNENBURG	4.89	3.84
PICTOU	5.95	4.96
QUEENS	7.81	5.87
RICHMOND	7.65	6.16
SHELburne	4.17	3.76
VICTORIA	5.54	4.59
YARMOUTH	4.93	3.87

PROVINCIAL CANCER REGISTRY OF NOVA SCOTIA

** STANDARDIZED TO 1981 NOVA SCOTIA POPULATION

**1988 REPORTED CASES BY COUNTY
(EXCLUDING SKIN & IN-SITU)
MALES**

TOTAL - 1866 (10 - COUNTY UNKNOWN)



COUNTY	INCIDENCE RATES	AGE ** ADJUSTED RATES
ANAPOLIS	4.27	3.46
ANTIGONISH	4.06	4.15
CAPE BRETON	4.96	4.60
COLCHESTER	5.01	4.31
CUMBERLAND	4.90	3.56
DIGBY	4.41	3.31
GUYSBOROUGH	5.44	4.29
HALIFAX	3.68	4.34
HANTS	4.01	4.03
INVERNESS	5.68	5.10
KINGS	4.39	4.05
LUNENBURG	4.37	3.44
PICTOU	3.88	3.24
QUEENS	5.36	4.03
RICHMOND	6.29	5.07
SHELBURNE	3.27	2.96
VICTORIA	3.56	2.81
YARMOUTH	4.26	3.36

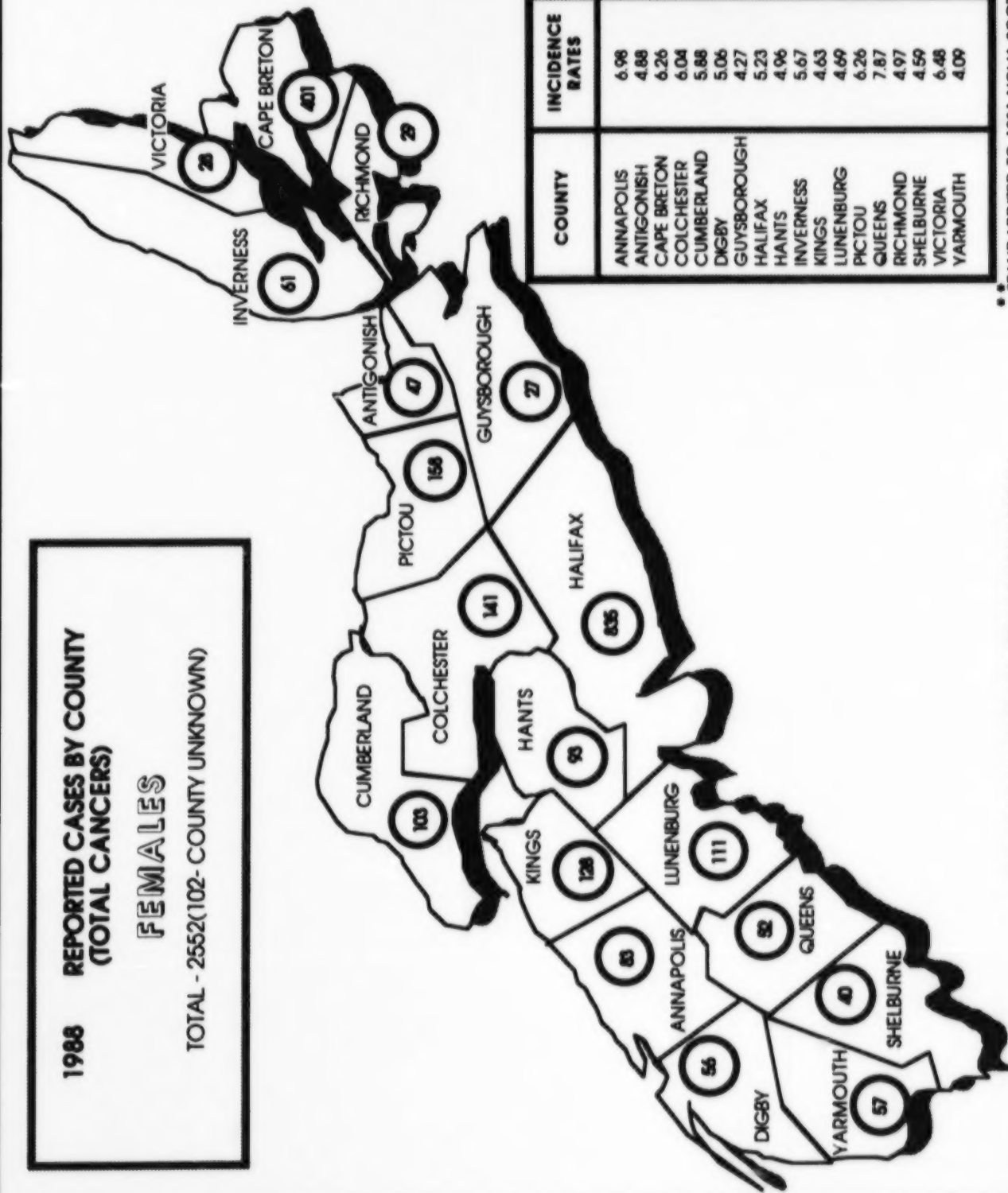
** STANDARDIZED TO 1981 NOVA SCOTIA POPULATION

PROVINCIAL CANCER REGISTRY OF NOVA SCOTIA

**1988 REPORTED CASES BY COUNTY
(TOTAL CANCERS)**

FEMALES

TOTAL - 2552(102- COUNTY UNKNOWN)



COUNTY	INCIDENCE RATES	AGE ** ADJUSTED RATES
ANAPOLIS	6.98	5.58
ANTIGONISH	4.88	4.92
CAPE BRETON	6.26	5.57
COLCHESTER	6.04	5.34
CUMBERLAND	5.88	4.40
DIGBY	5.06	3.83
GUYSBOROUGH	4.27	3.78
HALIFAX	5.23	5.44
HANTS	4.96	4.91
INVERNESS	5.67	5.17
KINGS	4.63	4.28
LUNENBURG	4.69	3.75
PICTOU	6.26	5.29
QUEENS	7.87	6.18
RICHMOND	4.97	4.32
SHELburne	4.59	4.33
VICTORIA	6.48	5.73
YARMOUTH	4.09	3.60

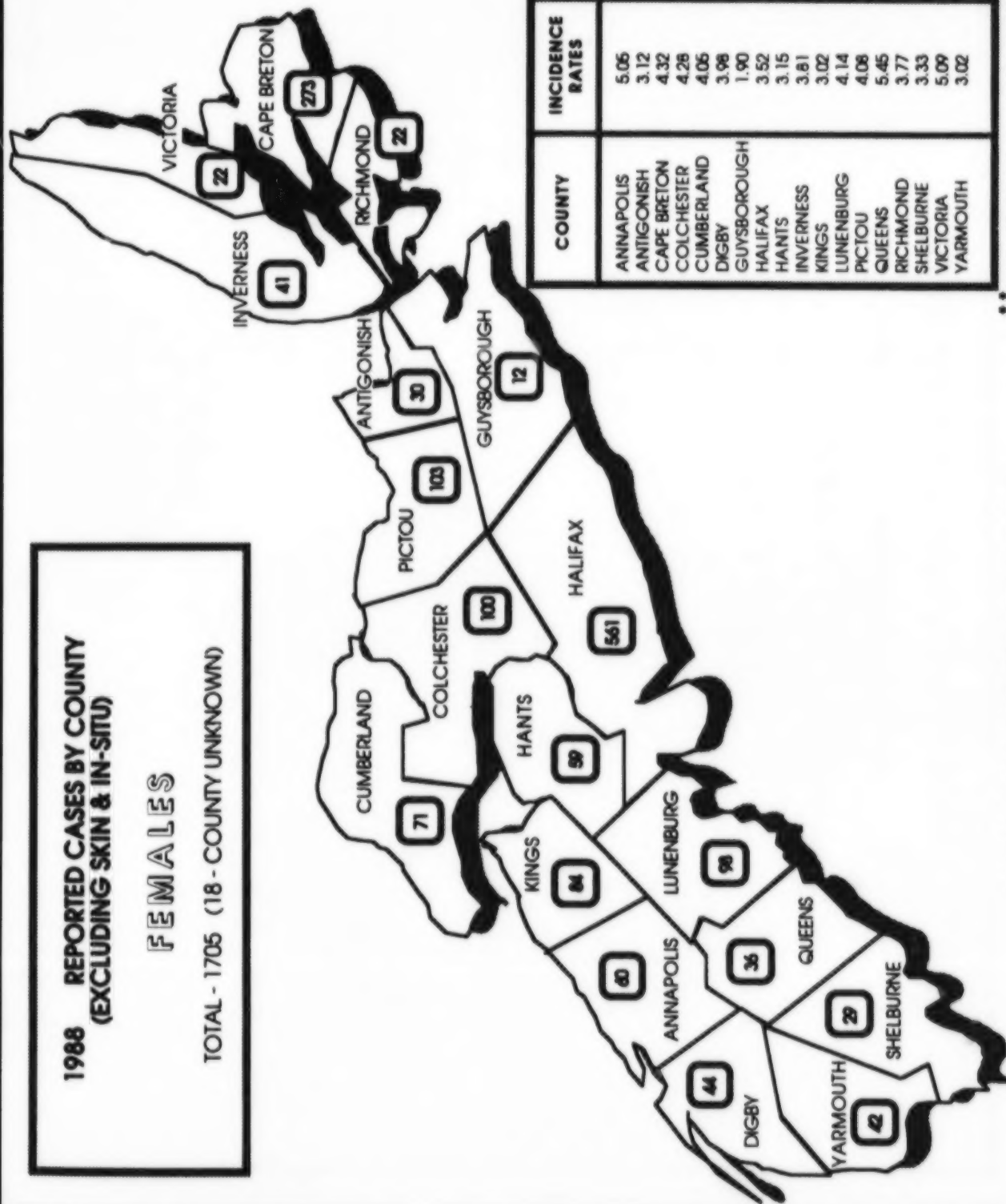
PROVINCIAL CANCER REGISTRY OF NOVA SCOTIA

* STANDARDIZED TO 1981 NOVA SCOTIA POPULATION

**1988 REPORTED CASES BY COUNTY
(EXCLUDING SKIN & IN-SITU)**

FEMALES

TOTAL - 1705 (18 - COUNTY UNKNOWN)



COUNTY	INCIDENCE RATES	AGE ** ADJUSTED RATES
ANNAPOLIS	5.06	4.03
ANTIGONISH	3.12	3.27
CAPE BRETON	4.32	3.80
COLCHESTER	4.28	3.79
CUMBERLAND	4.06	2.99
DIGBY	3.98	2.98
GUYSBOROUGH	1.90	1.72
HALIFAX	3.52	3.73
HANTS	3.15	3.13
INVERNESS	3.81	3.49
KINGS	3.02	2.79
LUNENBURG	4.14	3.26
PICTOU	4.08	3.47
QUEENS	5.45	4.35
RICHMOND	3.77	3.23
SHELBURNE	3.33	3.09
VICTORIA	5.09	4.44
YARMOUTH	3.02	2.63

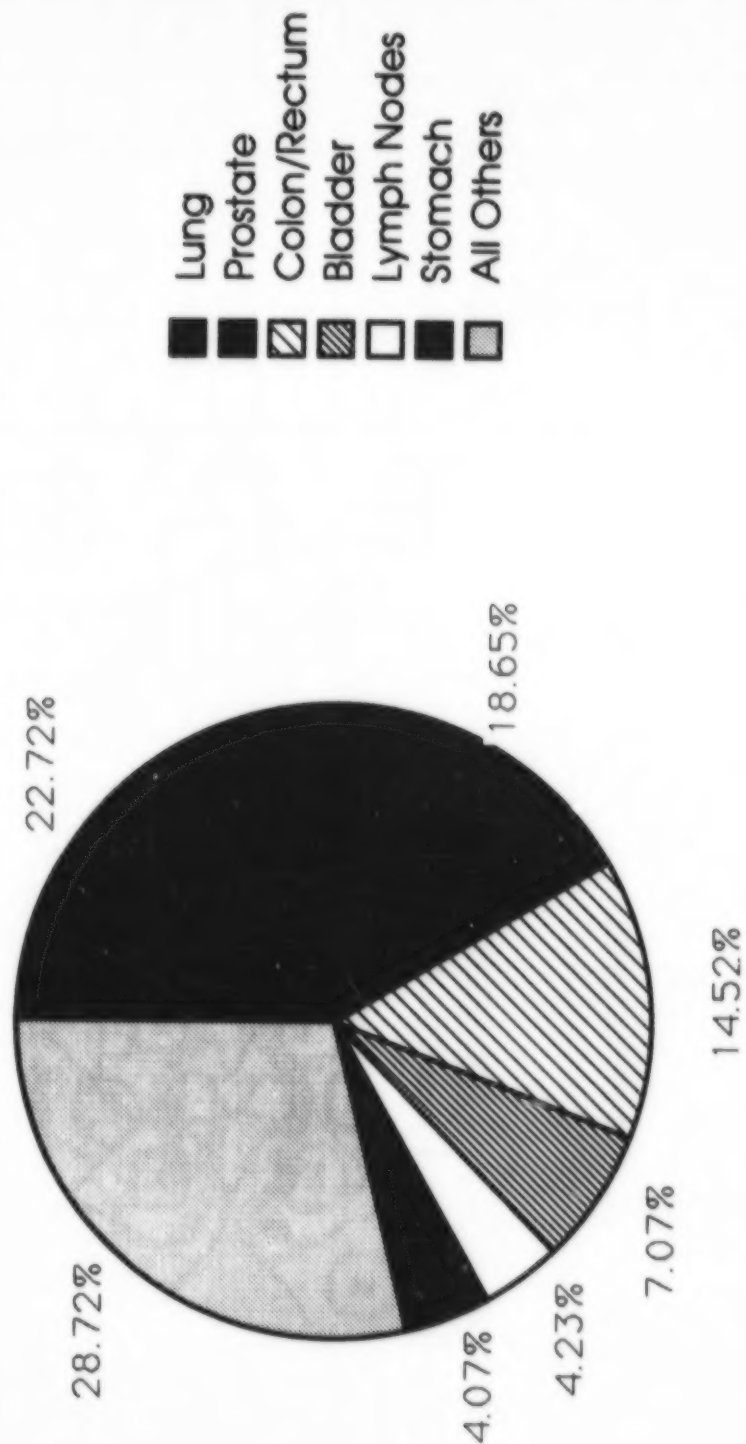
** STANDARDIZED TO 1981 NOVA SCOTIA POPULATION

PROVINCIAL CANCER REGISTRY OF NOVA SCOTIA

Most Common Primary Sites

Incidence (New Cases) 1988

MALES (1866)



Most Common Primary Sites

Incidence (New Cases) 1988

FEMALES (1705)

